ABSTRACT OF THE DISCLOSURE

A method of determining defect detection sensitivity data, comprises: taking image data from the desired surface areas of each of semiconductor devices, processing at least two of the image data through arithmetic operations and comparing the processed image data with a parameter of defect detection sensitivity substituted by predetermined threshold data to obtain information on defects in the desired areas at least in one-to-one correspondence with any of the image data arithmetically processed, repeating more than once the step of varying the parameter of the defect detection sensitivity to obtain the defect information, so as to obtain more than one sets of combination data on a value of the parameter of the defect detection sensitivity correlated with the defect information, processing more than one sets of the combination data to produce a mathematical function expressing a relation of the desired statistical data with the parameter of the defect detection sensitivity, the mathematical function being used to determine defect detection sensitivity data, the defect detection sensitivity data being used in obtaining the information on the defects in the desired surface areas of the semiconductor devices under defect inspection, and the defect detection sensitivity data defining an existence range of the defect information in the image data which are taken from the desired surface areas of each semiconductor device and which are arithmetically processed in the previous step.